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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,155	12/10/2001	Raafat R. Mansour	39437	9696
24629	7590	05/04/2004		
DARYL W SCHNURR MILLER THOMSON LLP PO BOX 578 SUITE 700, 22 FREDERICK STREET KITCHENER, ON N2G 4A2 CANADA			EXAMINER GLENN, KIMBERLY E	
			ART UNIT	PAPER NUMBER
			2817	
DATE MAILED: 05/04/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

10/006,155

Applicant(s)

MANSOUR, RAAFAT R.

Examiner

Kimberly E Glenn

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-22,24-37 and 39 is/are pending in the application.
- 4a) Of the above claim(s) 3,23 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-15,18-22,24-37 and 39 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 21 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Zaki US Patent 5,804,534.

Zaki disclose a dual mode filter comprising an input, output and one or more intermediate cavities and conducting resonators within each cavity. The resonator elements are mounted within the cavities by means of insulating mounting. The resonator element can have an alternate ring or doughnut shape. Therefore, a cut portion is removed from the cylindrical shaped resonator element. The resonator elements can be made of a copper, aluminum Invar or a superconducting material. Zaki teaches that it is possible to accurately design each of the composite resonators needed to realize a complex filter function. (Figure 1 and column 3 line 42 through column 4 line 61)

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 2, 4-11, 19, 21, 22, 24-32, 36 and 39 are rejected under 35 U.S.C. 102(a) as being anticipated by Salehi et al.

Salehi et al discloses a cavity having a cut resonator composed of metal therein. The resonator is out of contact with at least one wall and the resonator is a dual mode conductor-loaded resonator. Figure 4 shows a cavity has a half cut resonator located therein. Salehi et al discloses that the resonator can have a semicircular shape with one straight edge and a first cut away portion having a rectangular shape and being substantially centrally located in the straight edge. Salehi further discloses that the resonator has a substantially arcuate edge and second cut away portion having a rectangular shape that is substantially centrally located in said arcuate edge. The second cut away portion is larger than the first cut away portion. Salehi et al states that the modified shape of the resonator is to improve spurious performance. On page 1781, column 2, line 5-6, Salehi states that the resonator can be made from superconductive material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 2, 4-7, 12, 15, 18-20, 22, 24-27, 31, 32, 33, 36 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Zaki US Patent 5,804,534 in view of Nishikawa et al US Patent 4,423,397 (of record).

The primary reference, Zaki teaches a dual mode filter comprising an input, output and one or more intermediate cavities and conducting resonators within each cavity. The resonator elements are mounted within the cavities by means of insulating mounting. The resonator element can have an alternate ring or doughnut shape. Therefore, a cut portion is removed from the cylindrical shaped resonator element. The resonator elements can be made of a copper, aluminum hivar or a superconducting material. Zaki teaches that it is possible to accurately design each of the composite resonators needed to realize a complex filter function. (Figure 1 and column 3 line 42 through column 4 lines 61)

Thus, Zaki is shown to teach all the limitation of the claims with exception the resonator being a half cut resonator, the cavity having a rectangular shape and the resonator modified shape having a first cut portion and a second cut portion.

Nishikawa et al shows a half cut resonator and a resonator with a modified shape having a first cut portion and a second cut portion. (Figures 5 and 7)

One of ordinary skilled in the art, at the time of the invention, would have found it obvious to modify the shape of the resonators of Zaki to be half cut or to have a first and second cut portion as taught by Nishikawa et al. Though, the Nishikawa et al reference does not disclose a motivation for this modification, Zaki does disclose a suggestion for

this modification. The suggestion would have been to provide a composite resonator capable of providing complex filter functions.

One of ordinary skilled in the art, at the time of the invention, would have found it obvious to modify the shape of the cavities of the first embodiment Zaki to be rectangular as taught by the third embodiment of Zaki. The motivation for this modification would have been to provide an equivalent alternative cavity shape.

Claims 13, 14 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaki US Patent 5,804,534 in view of Nishikawa et al US Patent 4,423,397(of record) in view of Duong et al US Patent 6,081,175.

Zaki in combination with Nishikawa et al teaches a dual mode filter comprising an input, output and one or more intermediate cavities and conducting resonators within each cavity. The resonator elements are mounted within the cavities by means of insulating mounting. The resonator element can have an alternate ring or doughnut shape. Nishikawa et al teaches a half cut resonator and a resonator with a modified shape having a first cut portion and a second cut portion.

Thus, Zaki and Nishikawa et al teach all the limitation of the claim with the exception of the conductor loaded resonator being used in combination with dielectric resonator.

Duong et al disclose a filter comprising a dielectric resonator in first cavity and a metallic resonator in another cavity. Duong et al states the metallic resonator operate in a transverse electric and magnetic field (TEM) mode while the dielectric resonator

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operates in transverse electric (TE) mode. (Column 1 lines 37 through column 2 line 2 and figures 2-4)

One skilled in the art would have found it obvious to modify the filter of Zaki to include a cavity having a dielectric resonator. The motivation for this modification would have been to provide advantageous benefit of a filter capable of operating both TEM mode and TE mode.

Response to Arguments

Applicant's arguments filed 2/10/14 have been fully considered but they are not persuasive. With regards to applicant's arguments that the Zaki reference does not teach a cut resonator, which applicant defines as a cylindrical resonator that is cut away and is also asymmetrical about the longitudinal center axis of the resonator. The limitation about the cut resonator being asymmetrical about the longitudinal center axis of the resonator is not disclosed in any of the claims. Therefore the claims are given it broadest interpretation. With regards to applicant arguments that Nishikawa does not apply and would not result in the present invention, as the benefits achieved by the present invention would not obtain using cut dielectric resonators. Examiner is not replacing the resonators of Zaki with the resonators of Nishikawa. The Nishikawa reference teach that resonators can have modified shapes

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Mansour EP 1215747 A1,

Mansour et al 'Quasi Dual Mode Resonators ', Microwave Symposium Digest.,
2000 IEE E MTT-S International, Vol.1, June 2000 pages 183-186

Wang et al ' Conductor loaded resonator filters with wide spurious free stop band'
Microwave Symposium Digest, 2000 IEEE MTT-S International, Vol.2, June 1997 pages
1079-1082.

Allowable Subject Matter

Claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: With regards to claims 16, the prior art of record does not disclose a filter having eight cavities wherein the first and last cavities contain conductor loading resonator and the remaining cavities contain dielectric resonators. With regards to claims 17, the prior art of record does not disclose a filter having eight cavities wherein the first, second and third cavities contain conductor loading resonator and the remaining cavities contain dielectric resonators.

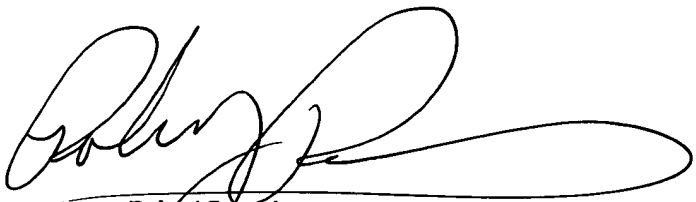
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (571)-272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly E Glenn
Examiner
Art Unit 2817

keg



Robert Pascal
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